

Amendments to the Claims

A detailed list of all claims under examination is set out below. Please amend claims 1, 3- 5, 12-14, 21 and 24 and add new claims 28-31 as shown below:

1. (currently amended): A composition, comprising:
a vinyl addition latex polymer having a first crosslinkable functional group;
a polyurethane dispersion having a second crosslinkable functional end group comprising an ~~acetoacetoxyl~~, acetoacetoxyl or diacetone, ~~amine or hydrazide~~ group or combination thereof; and
an optional crosslinker,
wherein the composition is in the form of a waterborne coating composition, and wherein the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink via polymer-to-polymer reaction at low temperature upon coalescence.
2. (original): The composition of claim 1, wherein the waterborne coating composition is essentially formaldehyde free.
3. (currently amended): The composition of claim 1, wherein the first crosslinkable functional group of the vinyl addition polymer ~~is reactive~~ comprises an amine group.
4. (currently amended): The composition of claim 1, wherein the first crosslinkable functional group comprises ~~an acetoacetoxyl, diacetone, amine or a hydrazide group or combination thereof~~.
5. (currently amended): The composition of claim 1, wherein the first crosslinkable functional group comprises an ~~acetoacetoxyl group, diacetone~~ amine or hydrazide group or combination thereof, and wherein the second crosslinkable functional end group comprises an ~~amine group, dihydrazide group or combination thereof~~ a diacetone group.
6. (original): The composition of claim 1, wherein the vinyl addition latex polymer is selected from the group consisting of: acrylates, methacrylates, styrenes, and vinyl monomers.

7. (original): The composition of claim 1, wherein the acid number of the vinyl addition latex polymer is between about 1 and 90.
8. (previously presented): The composition of claim 1, wherein the vinyl addition latex polymer has a glass transition temperature of between about -70 and 130 °C.
9. (original): The composition of claim 1, wherein the vinyl addition latex polymer comprises between about 10 and 90 weight percent of the coating composition.
10. (original): The composition of claim 1, wherein the polyurethane dispersion comprises between about 10 and 90 weight percent of the coating composition.
11. (original): The composition of claim 1, wherein the polyurethane dispersion is formed from the reaction product of a diisocyanate(s) and a polyol(s).
12. (currently amended): The composition of claim 11, wherein the diisocyanate ~~includes~~ comprises an aliphatic and or aromatic diisocyanate.
13. (currently amended): The composition of claim 11, wherein the polyol ~~includes~~ comprises a polyester, polyether, and or polycarbonate polyols polyol.

14. (currently amended): A composition ~~comprising~~ comprising:
a vinyl addition latex polymer having a first crosslinkable functional ~~group~~; and
~~group~~;
a polyurethane dispersion having a second crosslinkable functional end ~~group~~; group;
and
a crosslinker;

wherein the composition is in the form of a waterborne coating composition;
the first crosslinkable functional group of the vinyl addition latex polymer and the second
crosslinkable functional end group of the polyurethane dispersion self-crosslink via polymer-
to-crosslinker reaction of the vinyl addition polymer with the crosslinker and polymer-to-
crosslinker reaction of the polyurethane dispersion with the crosslinker at low temperature
upon ~~coalescence~~, ~~and the waterborne coating composition further comprises a crosslinker~~
~~coalescence~~; and

the first crosslinkable functional group comprises a diacetone, amine or hydrazide
group or combination thereof and the second crosslinkable functional group comprises
a carbonyl, acetoacetoxyl, polyamine or hydrazide group or combination thereof; or
the first crosslinkable functional group comprises a carbonyl, acetoacetoxyl, amine or
hydrazide group or combination thereof and the second crosslinkable functional group
comprises a diacetone, amine or hydrazide group or combination thereof.

15. (original): The composition of claim 14, wherein the crosslinker comprises between
about 0.5 and 20 weight percent of the coating composition.
16. (original): The composition of claim 14, wherein the crosslinker is selected from the
group consisting of: polyamines, dihydrazides, diacetones, acetoacetoxyl compounds, and
combinations thereof.

17. (original): The composition of claim 1, wherein the coating composition further comprises adjuvants selected from the group consisting of: pigments, cosolvents, wetting agents, UV stabilizers, pH control agents, viscosity control agents, flow control agents, leveling agents, biocides, and combinations thereof.
18. (original): The composition of claim 1, wherein the first and second functional groups are separated in separated phases of a dispersion.
19. (original): The composition of claim 1, wherein the coating composition is available in a one-pack composition.
20. (original): A composition, comprising:
about 10 to 90 weight percent vinyl addition latex polymer having a first crosslinkable functional group, wherein the vinyl addition latex polymer has an acid number of between about 10 to 60;
about 10 to 90 weight percent polyurethane dispersion having a second crosslinkable functional end group; and
about 1 to 20 weight percent crosslinker;
wherein the composition is in the form of a waterborne coating composition, the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink at low temperature upon coalescence and the coating composition is essentially formaldehyde free.

21. (currently amended): An article, comprising:
a substrate; and
a coating on the substrate, wherein the coating is a coalesced film made from a coating composition comprising:
a vinyl addition latex polymer having a first crosslinkable functional group;
a polyurethane dispersion having a second crosslinkable functional end group; and
a crosslinker,
wherein the coating composition is in the form of a waterborne coating composition, and ~~wherein composition~~; the coating composition is crosslinkable via polymer-to-crosslinker reaction of the vinyl addition polymer with the crosslinker and polymer-to-crosslinker reaction of the polyurethane dispersion with the crosslinker at low temperature upon coalescence; and
the first crosslinkable functional group comprises a diacetone, amine or hydrazide group or combination thereof and the second crosslinkable functional group comprises a carbonyl, acetoacetoxyl, amine or hydrazide group or combination thereof; or the first crosslinkable functional group comprises a carbonyl, acetoacetoxyl, amine or hydrazide group or combination thereof and the second crosslinkable functional group comprises a diacetone, amine or hydrazide group or combination thereof.
22. (original): The article of claim 21, wherein the substrate is selected from the group consisting of: wood, metals, plastics, ceramics and paper products.
23. (original): The article of claim 21, wherein the substrate is wood.

24. (currently amended): A method of coating a substrate, comprising the steps of:
providing a coating composition comprising:
a vinyl addition latex polymer having a first crosslinkable functional group;
a polyurethane dispersion having a second crosslinkable functional end group
comprising an ~~acetoacetoxy~~, acetoacetoxy or diacetone, ~~amine or hydrazide~~
group or combination thereof; and
water;
coalescing the coating composition at a low temperature to form a coating; and
crosslinking the coating composition,
wherein the coating composition is essentially formaldehyde free, and the first
crosslinkable functional group of the vinyl addition latex polymer and the second
crosslinkable functional end group of the polyurethane dispersion self-crosslink via
polymer-to-polymer reaction.
25. (original): The method of claim 24, wherein the coalescing of the coating composition
is accomplished at a temperature between about 15 and 90 °C.
26. (original): The method of claim 24, wherein the coalescing of the coating composition
is accomplished at a temperature between about 20 and 70 °C.
27. (original): The method of claim 24, wherein the coalescing of the coating composition
is accomplished at a temperature between about 20 and 50 °C.

28. (new): A composition comprising:

- a vinyl addition latex polymer having a first crosslinkable functional group;
- a polyurethane dispersion having a second crosslinkable functional end group; and
- a crosslinker comprising a diacetone, acetoacetoxyl or dihydrazide compound, or combination thereof;

wherein the composition is in the form of a waterborne coating composition; and the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink via polymer-to-crosslinker reaction of the vinyl addition polymer with the crosslinker and polymer-to-crosslinker reaction of the polyurethane dispersion with the crosslinker at low temperature upon coalescence.

29. (new): A composition comprising:

- a vinyl addition latex polymer having a first crosslinkable functional group;
- a polyurethane dispersion having a second crosslinkable functional end group; and
- a crosslinker;

wherein the composition is in the form of a waterborne coating composition; at least one of the first crosslinkable functional group, second crosslinkable functional end group and crosslinker comprises a diacetone group; at least one of the first crosslinkable functional group, second crosslinkable functional end group and crosslinker comprises an amine or hydrazide group; and the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink via polymer-to-crosslinker reaction of the vinyl addition polymer with the crosslinker and polymer-to-crosslinker reaction of the polyurethane dispersion with the crosslinker at low temperature upon coalescence.

30. (new): A composition comprising:
- a vinyl addition latex polymer having a first crosslinkable functional group comprising an amine or hydrazide group;
 - a polyurethane dispersion having a second crosslinkable functional end group comprising an acetoacetoxyl or diacetone group; and
 - a crosslinker comprising a polyamine, dihydrazide, diacetone or acetoacetoxyl compound, or combination thereof;
- wherein the composition is in the form of a waterborne coating composition; and the first crosslinkable functional group of the vinyl addition latex polymer and the second crosslinkable functional end group of the polyurethane dispersion self-crosslink at low temperature upon coalescence.
31. (new): A composition according to claim 30, wherein the self-crosslinking is via polymer-to-crosslinker reaction of the vinyl addition polymer with the crosslinker and polymer-to-crosslinker reaction of the polyurethane dispersion with the crosslinker.